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First description of the male of *Zelotes haifaensis* Levy, 2009 (Aranei: Gnaphosidae)

Первоописание самца *Zelotes haifaensis* Levy, 2009 (Aranei: Gnaphosidae)

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КЛЮЧЕВЫЕ СЛОВА: Aranei, Израиль, пауки, группа видов, *Zelotes*.

ABSTRACT: The male of *Zelotes haifaensis* Levy, 2009, is described for the first time from topotype material. The species is restricted to the Carmel Range, northern Israel.

РЕЗЮМЕ: Впервые описан самец *Zelotes haifaensis* Levy, 2009 на основе материалов собранных в типовой местности. Распространение вида ограничено только хребтом Кармель, что на севере Израиля.

Introduction

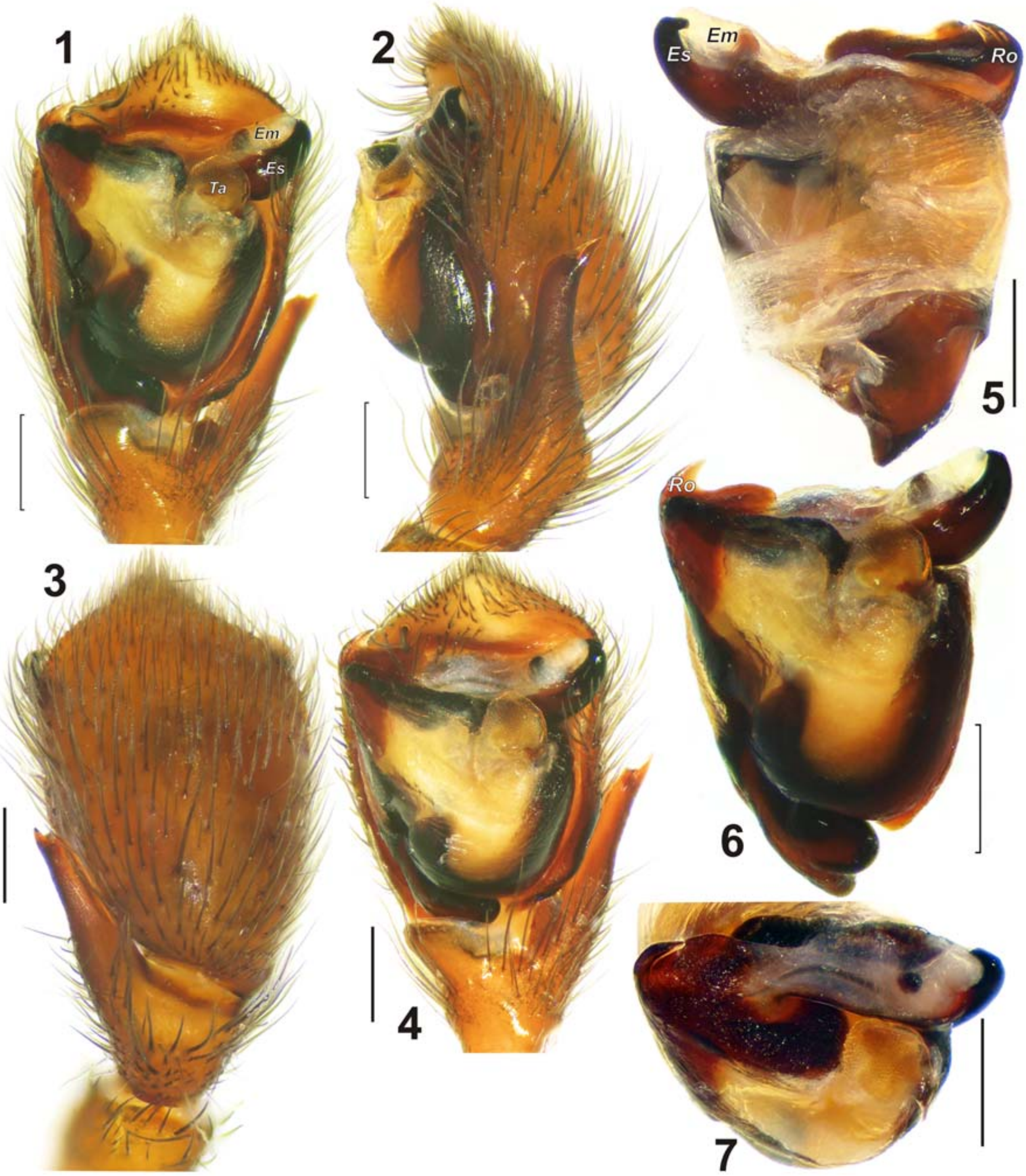
Spiders of the family Gnaphosidae are rather well studied in Israel thanks to the numerous publications by Gershom Levy [1995, 1998, 1999a,b, 2002, 2004, 2009]. It is the most species-rich family in the country, with 126 species belonging to 27 genera [Zonstein & Marusik, 2013]. The high level of knowledge of this family in Israel can be shown by the number of Gnaphosidae species in Israel (20%) is higher than that in any other Mediterranean country [Zonstein & Marusik, 2013]. Only France, Iberian Peninsula and Italy have more species of ground spiders (169, 168, 144, respectively). Although the family Gnaphosidae is well studied in Israel, 30 species (or ¼ of the whole fauna) are known by one sex. While studying fauna of Israel we found several samples containing males of *Zelotes haifaensis* Levy, 2009, a species previously known only by females. Some samples contained both females and males and all comes from nearby the type locality. Main goal of this paper is to provide a redescription of the female of *Z. haifaensis,* and the first description of the male.

Material and Methods

Photographs were taken in dishes of different sizes with paraffin at the bottom. Specimens were photographed using an Olympus Camedia E-520 camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum, University of Turku. SEM microphotographs were made with a JEOL JSM-5200 in the Zoological Museum, University of Turku. Digital images were prepared using "CombineZP" image stacking software. Epigynes were macerated in 10% KOH solution and painted with methylene blue. All measurements are given in mm.

Measurements and descriptions were made after Levy [1998]. The length of each leg is the combined length of all its segments (each segment measured separately) from femur to tarsus; the more proximal segments are excluded. The proportional indices used are: the carapace index (length divided by width), labial index (length divided by width), clypeal index (height of clypeus divided by diameter of anterior median eye), MOQ (median ocular quadrangle) index (length of carapace divided by longitudinal axis of MOQ) and patella-tibia index (combined length of both segments of the first leg divided by length of carapace).

Abbreviations of the museums: HUJ — Hebrew University of Jerusalem; MMUM the Manchester Museum, the University of Manchester; TAU — Tel Aviv University; ZMMU — Zoological Museum of the Moscow State University.



Figs 1–7. Male palp of *Zelotes haifaensis*: 1 — ventral; 2 — retrolateral; 3 — dorsal; 4 — ventro-apical; 5–7 — bulbus, dorsal, ventral and apical respectively. Scale 0.2 mm. Abbreviations: *Em* — membranous part of embolus, *Es* — sclerotized part of embolus, *Ro* — outgrowth of radix; *Ta* — tegular apophysis.

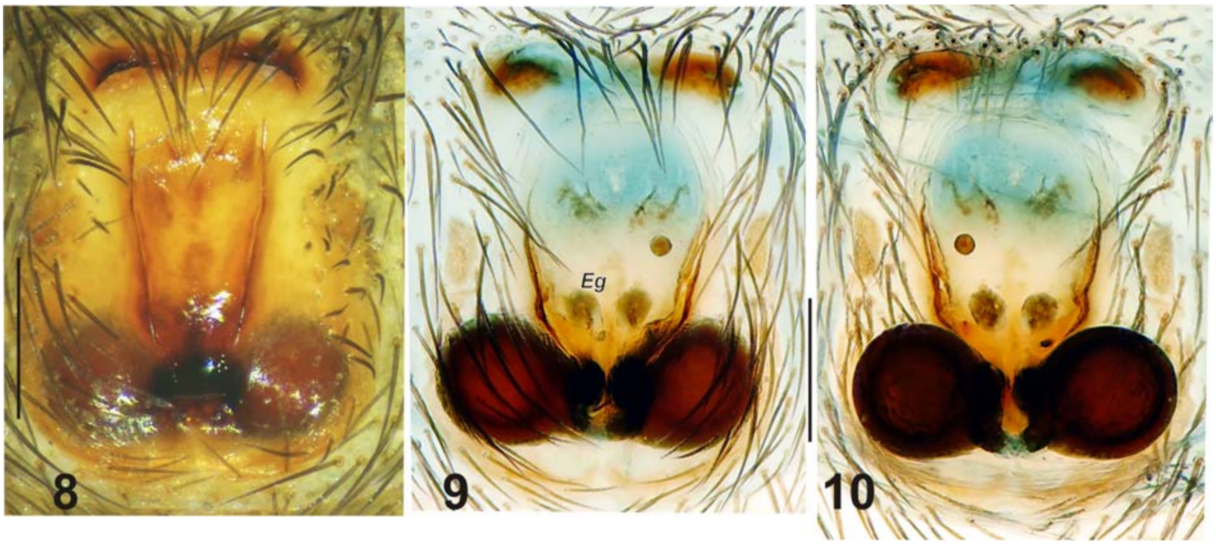
Рис. 1–7. Пальпа самца *Zelotes haifaensis*: 1 — вентрально; 2 — ретролатерально; 3 — дорзально; 5–7 — бульбус, дорзально, вентрально и сверху. Масштаб 0,2 мм. Сокращения: *Em* — мембранизированная часть эмболюса, *Es* — склеротизированная часть эмболюса, *Ro* — вырост радикса; *Ta* — тегулярный отросток.

Taxonomic Part

Zelotes haifaensis Levy, 2009
Figs 1–10.

Z. meronensis Levy, 1998: 120, f. 54–55 (♀, misidentified).
Z. h. Levy, 2009: 34 (♀).

MATERIAL EXAMINED: ISRAEL: Holotype ♀ (HUJ 14494), Haifa, March 1987 (V. Roth); 1 ♀ (MMUM) south part of *Carmel* Ridge, 1 km N of Bat Shlomo, 32°36'N 35°00'E, 150 m, 12.12.2011 (S.L. Zonstein); 2 ♂♂ 1 ♀ (TAU), Carmel Ridge, Bat Shlomo, 32°35.5′N 34°59.7′E, 6.03.2013 (S.L. Zonstein); 1 ♂ 2 ♀♀ (ZMMU), Ramat-HaNadiv, 1 km S Zihron-Ya'akov, 32°33′N 34°57′E, 130 m, 15.12. 2011 (S.L. Zonstein).



Figs 8–10. Epigyne of *Zelotes haifaensis*: 8–9 — ventral; 10 — dorsal. 9–10 — after maceration. Scale 0.2 mm. Abbreviation: *Eg* — pigynal gland.

Рис. 8–10. Эпигина *Zelotes haifaensis*: 8–9 — вентрально; 10 — дорзально. 9–10 — мацерированная. Масштаб 0,2 мм. Сокращение: *Eg* — железа эпигины.

COMMENTS. The holotype female of this species was first mismatched, and selected as a paratype of *Z. meronensis* Levy, 1998. Later Levy [2009] recognized the mistake and described a new species on the basis of a single female.

Zelotes haifaensis belongs to the *Z. argoliensis* (C.L. Koch, 1839) species group which encompasses also *Z. meronensis* Levy, 1998 and *Z. galunae* Levy, 1998. All four species occur in Israel. This group was created by Levy [1998] who called it "*galuni* subgroup".

DIAGNOSIS. *Zelotes haifaensis* differs from its congroupers by having a relatively wide or fused apical pockets of epigyne, large receptacles, long tibial apophysis with a bent and sharply pointed tip. The embolus of this species is rather similar to those of *Z. galunae*. The two species can be easily separated by the shape of radical apophysis: it is strongly bent and directed almost retrolaterally in *Z. haifaensis* and is directed almost apically in *Z. galunae*.

DESCRIPTION. Male. Total length 5.25. Carapace 2.75 long, 2.07, length/width ratio 1.33; labial index 1.48; clypeal index 1.8; MOQ index 8.3; leg length I 6.73, II 5.88, III 5.08, IV 8.48; patella-tibia index 0.97. Whole body and legs dark brown.

Palp as in Figs 1–7, retrolateral apophysis long (about twice as long as the tibia), sharply pointed, its tip bent dorsally; cymbium widened at the level of embolus; tip of cymbium triangular; tegular apophysis (*Ta*) relatively small, almost circular in ventral view (Fig. 1); embolus long and wide (Fig. 7), its tip consists of heavily sclerotized (*Es*) and membranous (*Em*) parts; radix with claw like outgrowth (*Ro*).

Female (holotype, after Levy, 1998). Total length 6.8. Carapace 3.1 long, 2.3 wide, length/width ratio 1.35; labial index 1.43; c1ypeal index 1.83; MOQ index 10.69; leg lengths: I 16.6; II 5.8; III 5.2; IV 8.3; patella-tibia index 0.84. Whole body and legs dark brown.

Epigyne as in Figs 8–10. Epigyne on Figs 9–10 has different proportion than in Fig. 8, because it was slightly bent after maceration. Fovea long with almost parallel margins; apical pockets variable, from fused to well separated as in Figs 9–10. Receptacles large, round, their diameters are equal to fovea width; glands (*Eg*) spaced from each other and from receptacles by their diameter.

DISTRIBUTION. The species is known exclusively the environs of Haifa in the Carmel Range on the area 30 km long and 20 km wide.

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References

Levy G. 1995. Revision of the spider subfamily Gnaphosinae in Israel (Araneae: Gnaphosidae) // Journal of Natural History, London. Vol.29. P.919–981.

Levy G. 1998. The ground-spider genera *Setaphis, Trachyzelotes, Zelotes* and *Drassyllus* (Araneae: Gnaphosidae) in Israel // Israel Journal of Zoology. Vol.44. P.93–158.

Levy G. 1999a. Spiders of the genera *Anagraphis* and *Talanites* (Araneae, Gnaphosidae) from Israel // Israel Journal of Zoology. Vol.45. P.215–225.

Levy G. 1999b. Spiders of six uncommon drassodine genera (Araneae: Gnaphosidae) from Israel // Israel Journal of Zoology. Vol.45. P.427–452.

Levy G. 2002. Spiders of the genera *Micaria* and *Aphantaulax* (Araneae, Gnaphosidae) from Israel // Israel Journal of Zoology. Vol.48. P.111–134.

Levy G. 2004. Spiders of the genera *Drassodes* and *Haplodrassus* (Araneae, Gnaphosidae) from Israel // Israel Journal of Zoology. Vol.50. P.1–37.

Levy G. 2009. New ground-spider genera and species with annexed checklist of the Gnaphosidae (Araneae) of Israel // Zootaxa. Vol.2066. P.1–49.

Zonstein S.L., Marusik Yu.M. 2013. Checklist of the spiders (Araneae) of Israel // Zootaxa. Vol. 3671. No.1. P.1–127.

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